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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,715	01/08/2002	Mikko Kanerva	915.419	5318

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EXAMINER

DEAN, RAYMOND S

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 08/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/041,715	KANERVA, MIKKO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Raymond S. Dean	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 - 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khan et al. (6,400,954) in view of Wieczorek et al. (6,125,278).

Regarding Claim 1, Khan teaches a method of communicating data in a cellular telecommunication network in which the available capacity is not uniformly distributed, comprising the steps of: where a communication has been established between the mobile station and the cellular telecommunication network, scheduling the data communication to or from the mobile station in accordance with the available capacity of the network at the current and future locations of the mobile station (Column 4 lines 35 – 53, lines 63 – 67, Column 5 lines 1 – 6, the capacity of the access network comprises the capacity of current and future locations of said access network), wherein the data communication to or from the mobile station at the current location of the mobile station is prioritized in the scheduling step when the available capacity at future locations is less than that at the current location (Column 5 lines 63 – 67, Column 6 lines 1 – 7, lines 35 – 48, the availability of the bandwidth depends on the capacity at the current and

future locations), and wherein the data communication to or from the mobile station at the current location of the mobile station is delayed in the scheduling step when the available capacity at future locations is higher than that at the current location (Column 5 lines 63 – 67, Column 6 lines 1 – 7, lines 35 – 48, the availability of the bandwidth depends on the capacity at the current and future locations).

Khan does not teach tracking the locations of a mobile station moving in the cellular telecommunication network.

Wieczorek teaches tracking the locations of a mobile station moving in the cellular telecommunication network (Column 3 lines 25 – 31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the tracking method taught above in Wieczorek in the wireless system of Khan for the purpose of enabling the allocation of communication resources to accommodate differing loading conditions as mobile units move within a coverage area supported by different server sites as taught by Wieczorek.

Regarding Claim 2, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 1. Wieczorek further teaches estimating the future locations of the mobile station on the basis of the locations tracked in the tracking step (Column 3 lines 56 – 64).

Regarding Claim 3, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 1. Wieczorek further teaches estimating the future locations of the mobile station on the basis of route information about the moving mobile station provided by the mobile station (Column 3 lines 32 – 37).

Regarding Claim 4, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 1. Wieczorek further teaches estimating (S12) the future locations of the mobile station on the basis of movement patterns of the mobile station (Column 3 lines 56 – 64, the location history is a history of the movement patterns of the mobile station).

Regarding Claim 5, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 1. Wieczorek further teaches estimating (S13) the available capacity of the network at the current and future locations of the mobile station on the basis of an estimated current and future traffic load distribution of the network in the area in which and towards the mobile station is moving (Column 2 lines 64 – 67, Column 3 line 1, Column 3 lines 65 – 67, the system estimates the loading conditions at the future site such that there will be proper allocation of communication resources).

Regarding Claim 6, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 5. Khan further teaches wherein the area comprises cells, groups of cells, geographical areas and network nodes (Column 3 lines 59 – 60, Column 4 lines 6 – 7, the GPRS/GSM system comprises groups of cells, geographical areas, and network nodes).

Regarding Claim 7, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 1. Wieczorek further teaches estimating (S3) the data communication needs of the mobile station (Column 3 lines 65 – 67).

Regarding Claim 8, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 7. Khan further teaches the data communication to or from

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the mobile station is prioritized in the scheduling step when the data communication needs exceed a specific amount of data to be communicated (Column 5 lines 63 – 67, Column 6 lines 1 – 7).

Regarding Claim 9, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 5. Wieczorek further teaches wherein the mobile station executes measurements of the traffic load distribution in the area and along the path in which it is moving (Column 4 lines 27 – 31, subscriber environment information comprises traffic load), and wherein the available capacity of the current and future locations of the mobile station is estimated on the basis of the measurement results (Column 3 lines 31 – 37).

Regarding Claim 10, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 7. Khan further teaches buffering data transmitted to and from the mobile station (1), wherein the estimation of the data communication needs of the mobile station (1) is performed by monitoring the amount of buffered data (Column 6 lines 23 – 25).

Regarding Claim 11, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 7. Khan further teaches wherein the data communication needs of the mobile station are estimated on the basis of a transmission request from the mobile station (Column 5 lines 14 – 28).

Regarding Claim 12, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 9. Wieczorek further teaches wherein the mobile station executes the measurements according to traffic load distribution information received

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from the network (Column 4 lines 27 – 31, the subscriber environment information comprises traffic load).

Regarding Claim 13, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 1. Khan further teaches wherein a plurality of mobile stations each having data communication needs are present in the network, and wherein the data communications of the plurality of mobile stations are scheduled in accordance with the available capacity of the network (Column 3 lines 59 – 60, Column 4 lines 6 – 7, Column 5 lines 14 – 28, a typical GPRS/GSM system comprises a plurality of mobile stations).

Regarding Claim 14, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 13. Khan further teaches wherein the data communications of the plurality of mobile stations are scheduled in accordance with estimated data communication needs of these mobile stations (Column 5 lines 14 – 28).

Regarding Claim 15, Khan teaches a telecommunication system for communicating data in a cellular telecommunication network in which the available capacity is not uniformly distributed, comprising: control means communicating with a mobile station and the cellular telecommunication network, where a communication has been established between the mobile station and the cellular telecommunication network, for scheduling the data communication to or from the mobile station in accordance with the available capacity of the network at the current and future locations of the mobile station (Column 4 lines 35 – 53, lines 63 – 67, Column 5 lines 1 – 6, the capacity of the access network comprises the capacity of current and future locations of

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said access network, the control means is a part of the GPRS/GSM system), wherein the data communication to or from the mobile station at the current location of the mobile station is prioritized by the control means when the available capacity at future locations is less than that at the current location (Column 5 lines 63 – 67, Column 6 lines 1 – 7, lines 35 – 48, the availability of the bandwidth depends on the capacity at the current and future locations), and wherein the data communication to or from the mobile station at the current location of the mobile station is scheduled by the control means when the available capacity at future locations is higher than that at the current location (Column 5 lines 63 – 67, Column 6 lines 1 – 7, lines 35 – 48, the availability of the bandwidth depends on the capacity at the current and future locations).

Khan does not teach a control means for tracking the locations of a mobile station moving in the cellular telecommunication network.

Wieczorek teaches a control means for tracking the locations of a mobile station moving in the cellular telecommunication network (Column 3 lines 25 – 31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the tracking method taught above in Wieczorek in the wireless system of Khan for the purpose of enabling the allocation of communication resources to accommodate differing loading conditions as mobile units move within a coverage area supported by different server sites as taught by Wieczorek.

Regarding Claim 16, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 15. Wieczorek further teaches the control means estimating



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the future locations of the mobile station on the basis of tracked locations (Column 3 lines 56 – 64).

Regarding Claim 17, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 15. Wieczorek further teaches the control means estimating the future locations of the mobile station on the basis of route information about the moving mobile station provided by the mobile station (Column 3 lines 32 – 37, lines 56 – 64).

Regarding Claim 18, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 15. Wieczorek further teaches the control means estimating the future locations of the mobile station on the basis of movement patterns of the mobile station (Column 3 lines 56 – 64, the location history is a history of the movement patterns of the mobile station).

Regarding Claim 19, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 15. Wieczorek further teaches the control means estimating the available capacity of the network at the current and future locations of the mobile station on the basis of an estimated current and future traffic load distribution of the network in the area in which and towards the mobile station is moving (Column 2 lines 64 – 67, Column 3 line 1, Column 3 lines 65 – 67, the system estimates the loading conditions at the future site such that there will be proper allocation of communication resources).

Regarding Claim 20, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 19. Khan further teaches wherein the area comprises cells,

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groups of cells, geographical areas and network nodes (Column 3 lines 59 – 60, Column 4 lines 6 – 7, the GPRS/GSM system comprises groups of cells, geographical areas, and network nodes).

Regarding Claim 21, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 15. Wieczorek further teaches the control means estimating the data communication needs of the mobile station (Column 3 lines 65 – 67).

Regarding Claim 22, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 21. Khan further teaches the data communication to or from the mobile station is prioritized by the control means when the data communication needs exceed a specific amount of data to be communicated (Column 5 lines 63 – 67, Column 6 lines 1 – 7).

Regarding Claim 23, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 19. Wieczorek further teaches wherein the mobile station executes measurements of the traffic load distribution in the area and along the path in which it is moving (Column 4 lines 27 – 31, subscriber environment information comprises traffic load), and wherein the control means estimate the available capacity of the current and future locations of the mobile station on the basis of the measurement results transmitted from the mobile station to the control means (Column 3 lines 31 – 37).

Regarding Claim 24, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 21. Khan further teaches the control means monitoring buffers for buffering data transmitted to and from the mobile station (1), and estimate

the data communication needs of the mobile station (1) on the basis of the monitored amount of buffered data (Column 6 lines 23 – 25).

Regarding Claim 25, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 21. Khan further teaches wherein the control means estimate the data communication needs of the mobile station on the basis of a transmission request from the mobile station (Column 5 lines 14 – 28).

Regarding Claim 26, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 23. Wieczorek further teaches wherein the mobile station executes the measurements according to traffic load distribution information received from the network (Column 4 lines 27 – 31, the subscriber environment information comprises traffic load).

Regarding Claim 27, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 15. Khan further teaches wherein a plurality of mobile stations each having data communication needs are present in the network, and wherein the data communications of the plurality of mobile stations are scheduled in accordance with the available capacity of the network (Column 3 lines 59 – 60, Column 4 lines 6 – 7, Column 5 lines 14 – 28, a typical GPRS/GSM system comprises a plurality of mobile stations).

Regarding Claim 28, Khan in view of Wieczorek teaches all of the claimed limitations recited in Claim 27. Khan further teaches wherein the data communications of the plurality of mobile stations are scheduled in accordance with estimated data communication needs of these mobile stations (Column 5 lines 14 – 28).

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S. Dean whose telephone number is 571-272-7877. The examiner can normally be reached on 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

On July 15, 2005, the Central FAX Number will change to **571-273-8300**. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus. Most facsimile-transmitted patent application related correspondence is required to be sent to the Central FAX Number. To give customers time to adjust to the new Central FAX Number, faxes sent to the old number (703-872-9306) will be routed to the new number until September 15, 2005. After September 15, 2005, the old number will no longer be in service and **571-273-8300** will be the only facsimile number recognized for "centralized delivery".


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**Conclusion**

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S. Dean whose telephone number is 571-272-7877. The examiner can normally be reached on 6:00-2:30.

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Raymond S. Dean  
August 9, 2005

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PATENT EXAMINER/TELECOMM.

S.O. 8/10/05